Prachi Shahare

Assistant Professor

Computer Department

Durga Mahavidyalaya, Raipur

Topic: Management Information System

Management Information System

Introduction to MIS and Other system

To the managers, Management Information System is an implementation of the organizational systems and procedures. To a programmer it is nothing but file structures and file processing. However, it involves much more complexity.

The three components of MIS provide a more complete and focused definition, where **System** suggests integration and holistic view, **Information** stands for processed data, and **Management** is the ultimate user, the decision makers.

Management information system can thus be analyzed as follows −

Management

Management covers the planning, control, and administration of the operations of a concern. The top management handles planning; the middle management concentrates on controlling; and the lower management is concerned with actual administration.

Information

Information, in MIS, means the processed data that helps the management in planning, controlling and operations. Data means all the facts arising out of the operations of the concern. Data is processed i.e. recorded, summarized, compared and finally presented to the management in the form of MIS report.

System

Data is processed into information with the help of a system. A system is made up of inputs, processing, output and feedback or control.

Thus MIS means a system for processing data in order to give proper information to the management for performing its functions.

Definition

Management Information System or 'MIS' is a planned system of collecting, storing, and disseminating data in the form of information needed to carry out the functions of management.

Objectives of MIS

The goals of an MIS are to implement the organizational structure and dynamics of the enterprise for the purpose of managing the organization in a better way and capturing the potential of the information system for competitive advantage.

Following are the basic objectives of an MIS −

- **Capturing Data** − Capturing contextual data, or operational information that will contribute in decision making from various internal and external sources of organization.
- **Processing Data** − The captured data is processed into information needed for planning, organizing, coordinating, directing and controlling functionalities at strategic, tactical and operational level. Processing data means −
    - making calculations with the data
    - sorting data

    - classifying data and
    - summarizing data
- **Information Storage** − Information or processed data need to be stored for future use.
- **Information Retrieval** − The system should be able to retrieve this information from the storage as and when required by various users.
- **Information Propagation** − Information or the finished product of the MIS should be circulated to its users periodically using the organizational network.
  - In order to make sense of the evolution of management information systems, it's helpful to break down the history into four or five eras.

  - **First Era (mid-1960s to mid-1970s)**
    During the first years of computerized MIS, information systems were centralized and concerned solely with governance and the needs of management. Most information systems and their reports were under the control of accounting departments. Technology included third-generation mainframe computers, like the IBM 360. Languages included Assembler, Fortran, COBO and, Database e. Ethernet networks were developed during this time.

  - **Second Era (mid-1970s to mid-1980s)**
    While MIS was still mainly concerned with governance and the needs of management, more departments were beginning to benefit from the technology. In many companies, steering committees and user-led initiatives determined the shape and scope of additional IS projects. Technology included the first personal computers (PCs), minicomputers and mid-range computers.

  - **Third Era (mid-1980s to late 1990s)**
    During the third era, centralized information systems began to spread out and information became decentralized. Each department had its own computer system. Managing information was often referred to as "herding cats." It was during this era that a new position emerged in many companies to oversee the acquisition and management of multiple information systems: the Chief Information Officer, or CIO. Technology during this era included internetworking and the beginning of the internet.

  - **Fourth Era (late 1990s to today)**
    During the current era, information systems are still tightly tied to governance and management, however the systems are widely distributed, within the reach of nearly every employee who needs it across multiple platforms. Many information systems are integrated between different companies, so that a client business can readily access supplier information and their customers, in turn, can access that information. Technology now includes social media, search engines and ubiquitous computing through a variety of platforms including laptops, tablets and smartphones.

  - **Fifth Era (today forward)**
    The increase in internet bandwidth over recent years has led to a substantial reliance on cloud computing. As a result, some maintain that this marks a new era in worker's ascendancy and that we are now in a fifth era for management information systems. Today, practically any employee is now in a position to make informed decisions with tools that are readily available across multiple platforms. Furthermore, the line between who produces and who consumes MIS information is increasingly blurred.

Need of MIS

Information processing beyond doubt is the dominant industry of the present century. Following factors states few common factors that reflect on the needs and objectives of the information processing −

- Increasing impact of information processing for organizational decision making.
- Dependency of services sector including banking, financial organization, health care, entertainment, tourism and travel, education and numerous others on information.
- Changing employment scene world over, shifting base from manual agricultural to machine-based manufacturing and other industry related jobs.
- Information revolution and the overall development scenario.

- Growth of IT industry and its strategic importance.
- Strong growth of information services fuelled by increasing competition and reduced product life cycle.
- Need for sustainable development and quality life.
- Improvement in communication and transportation brought in by use of information processing.
- Use of information processing in reduction of energy consumption, reduction in pollution and a better ecological balance in future.
- Use of information processing in land record managements, legal delivery system, educational institutions, natural resource planning, customer relation management and so on.

The applications and benefits of MIS

The quality and diversity of the information gathered by MIS brings with it a host of benefits for companies of all shapes and sizes. Let's take a look at some of the applications of MIS reporting and their inherent benefits:

- It can help eliminate wasteful spending such as idle time and wasted resources to enhance cost control
- It aids in the evaluation of employees, equipment and processes
- It can be used to measure actual performance against projected figures and budgets
- It takes the effort out of collating and maintaining data flows throughout an organisation
- It can be useful in mitigating the uncertainty and risk that are often inherent in upper-level decision-making

Characteristics of MIS

In general, management information systems have a number of characteristic, which include the following:

1. Report with fixed and standard formation. For example scheduled reports for inventory control may contain the same type of information placed in the same location on the reports.

2. Have report developed and implemented using information system personnel, including systems analysts and a computer programmer. Typically analysts and programmers are involved in developing and implementing MIS reports. Users are normally involved in the design of the reports, but they are not typically involved in writing the computer programs to produce them.

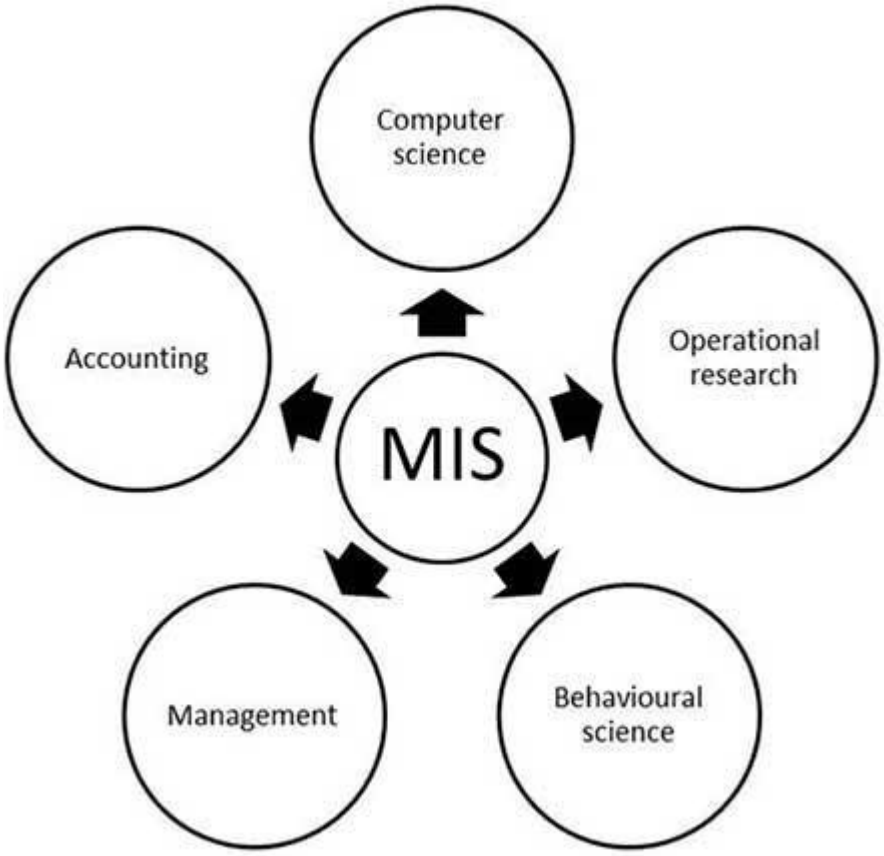
3. Require a formal request from users. Because information systems personnel typically develop and implement MIS reports, a formal request to the information systems department for report is usually required.

4. Produce scheduled and demand reports. The major type of reports produced by MIS is scheduled; demand reports (Stair, 1992).

5. External data is not captured by the organization but is used by MIS, (i.e., customer, supplier and competitor information).

Nature and Scope of MIS

The following diagram shows the nature and scope of MIS −



Components of Information Systems

The computer age introduced a new element to businesses, universities, and a multitude of other organizations: a set of components called the information system, which deals with collecting and organizing data and information. An information system is described as having five components.

- **Computer hardware**

  This is the physical technology that works with information. Hardware can be as small as a smartphone that fits in a pocket or as large as a supercomputer that fills a building. Hardware also includes the peripheral devices that work with computers, such as keyboards, external disk drives, and routers. With the rise of the Internet of Things, in which anything from home appliances to cars to clothes will be able to receive and transmit data, sensors that interact with computers are permeating the human environment.

- **Computer software**

  The hardware needs to know what to do, and that is the role of software. Software can be divided into two types: system software and application software. The primary piece of system software is the operating

system, such as Windows or iOS, which manages the hardware's operation. Application software is designed for specific tasks, such as handling a spreadsheet, creating a document, or designing a Web page.

- **Telecommunications**

  This component connects the hardware together to form a network. Connections can be through wires, such as Ethernet cables or fibre optics, or wireless, such as through Wi-Fi. A network can be designed to tie together computers in a specific area, such as an office or a school, through a local area network (LAN). If computers are more dispersed, the network is called a wide area network (WAN). The Internet itself can be considered a network of networks.

- **Databases and data warehouses**

  This component is where the "material" that the other components work with resides. A database is a place where data is collected and from which it can be retrieved by querying it using one or more specific criteria. A data warehouse contains all of the data in whatever form that an organization needs. Databases and data warehouses have assumed even greater importance in information systems with the emergence of "big data," a term for the truly massive amounts of data that can be collected and analyzed.

- **Human resources and procedures**

  The final, and possibly most important, component of information systems is the human element: the people that are needed to run the system and the procedures they follow so that the knowledge in the huge databases and data warehouses can be turned into learning that can interpret what has happened in the past and guide future action.